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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,269	02/20/2004	Jeffrey E. Ungar	156900-0025 (P009)	7329
1622	7590	07/17/2006	EXAMINER VY, HUNG T	
IRELL & MANELLA LLP 840 NEWPORT CENTER DRIVE SUITE 400 NEWPORT BEACH, CA 92660			ART UNIT 2163	PAPER NUMBER

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/783,269

Applicant(s)

UNGAR ET AL

Examiner

Hung T. Vy

Art Unit

2163

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-14 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. As of entry of amendment filed 06/05/2006, claims 1-14 are pending in this application. Upon reconsideration, the Applicant's arguments filed on 06/05/2006 are not persuasive (see argument response).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

35 U.S.C. § 102(e), as revised by the AIPA and H.R. 2215, applies to all qualifying references, except when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. For such patents, the prior art date is determined under 35 U.S.C. § 102(e) as it existed prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. § 102(e)).

3. Claims 1-14 are rejected under 35 U. S. C. § 102 (e) as being anticipated by Evans et al., U.S. Patent. No. 6,853,666.

Claims 1, 3, 6, 8, 11 and 13, Evans et al. disclose a semiconductor laser and a method for operating a semiconductor laser, comprising: a first optical gain element 1402 that generates a first light beam having a first optical frequency; a second optical gain element 1402 that generates a second light beam having a second optical frequency (See fig. 14 or see column 11, line 56-61); an optical frequency mixer 3 includes a waveguide optically (See column 11, line 60) that is coupled to said first 1402

and second gain elements 1402 and generates a polarization wave at a third optical frequency; and near-field phase grating 8 that phase modulates the polarization wave to couples a power from the polarization wave to an electromagnetic wave propagating at the third optical frequency (See fig. 1,2 or 14).

Claims 2, 7 and 12, Evans et al. disclose different kind of wavelength depend on the grating 8 (See column 4, line 30-58) so it is inherent Evans et al. disclose the third optical frequency is in the mid-infrared, long-infrareads or terahertz regions.

Claims 4, 9 and 14, Evans et al. disclose the electromagnetic wave propagates in a direction essentially perpendicular to a propagation direction of the first and second light beams (See column 5, line 62-67).

Claims 5, and 10 Evans et al. disclose the semiconductor laser is fabricated with group III-V material (See column 13, line 53-55).

4. Claims 1, 3, 6, 8, 11 and 13 are rejected under 35 U. S. C. § 102 (b) as being anticipated by Uchida, U.S. Patent. No. 5,757,832.

Claims 1, 3, 6, 8, 11 and 13, Uchida discloses a semiconductor laser and a method for operating a semiconductor laser, comprising: a first optical gain element that generates a first light beam having a first optical frequency; a second optical gain element that generates a second light beam having a second optical frequency (See fig. 16); an optical frequency mixer includes a waveguide optically 504a (See fig.16) that is coupled to said first and second gain elements and generates a polarization wave at a third optical frequency; and near-field phase grating 503 that couples a power from the

polarization wave to an electromagnetic wave propagating at the third optical frequency (See fig. 2 or 16).

Response to Arguments

5. Applicant's arguments filed on 06/05/2006 have been fully considered but they are not persuasive. Applicant made the following arguments:

- a. "The Examiner rejected claims 1-14 under 35 U.S.C. j 103(e) as being anticipated by Evans. As noted by the Examiner, Evans discloses two different gain elements, a waveguide and a phase rating. The Applicant is not claiming a device with these four components. What is disclosed and claimed is at semiconductor laser that mixes lights of different frequency to generate a polarization wave at a third frequency. This polarization wave is then phase modulated to create emitted light that is at the third frequency. Evans does not disclose the mixing of light beams and a modulation of the resultant polarization wave to create an output light beam at a third frequency." page 5, fourth paragraph.
- b. "The Examiner rejected claims 1, 3, 6, 8, 1 1 and 13 under 35 U.S.C. 102(b) as being anticipated by Uchida. Uchida suffers from the same deficiencies as Evans. Although Uchida discloses different gain elements, waveguides and a grating, it does not disclose a particular cooperation of these components to mix lights from different frequencies to generate a polarization wave and then modulating the polarization wave to create an output beam at a third frequency as claimed in the above entitled application. It is not inherent that Uchida would

disclose the mixing and modulation of beams and waves merely because it contains a waveguide and a rating. Uchida does not disclose or suggest the structure and methods recited in claims 1, 3, 6, 8, 11 and 13.” page 7, fifth full paragraph.

In response to Applicant’s argument **a** above, the Applicant's arguments are not persuasive because the claims do not support for the Applicant’s argument as the claims do not recite a device with **only** four components so Evans still read on claim. Further, Evans discloses only one the outcoupling grating (8) with the same grating so a device will produce the third optical frequency with equivalent with outcoupling the grating (8) (See column 5, line 41-61 or column 6, line 7-17 or column 4, line 30-55).

In response to Applicant’s argument **b** above, the Applicant's arguments are not persuasive because Uchida discloses only one grating (503) that produces the third optical frequency (see fig. 16).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung T. Vy whose telephone number is 571-2721954.

The examiner can normally be reached on 8.30am - 5.30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571 272 1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DON WONG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Hung T. Vy
Art Unit 2821
July 10, 2006.

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